

ABSTRACT

Optical telecommunications system, comprising: a station (1) for transmitting optical signals, comprising a transmission signal generator (2), capable of generating at least two signals at wavelengths lying within a band of predetermined width, and a  
5 multiplexer (3) of the optical signals; a station (8) for receiving the optical signals; and an optical fibre line connecting the said multiplexer of the transmission station to the receiving station. The optical fibre line includes at least one optical amplifier (7) comprising at least one fibre (12) doped with a rare earth, at least one source of  
10 pumping radiation (14) for the said doped fibre, and a gain stabilization circuit. The gain stabilization circuit comprises: a separator of the transmission signals from the spontaneous emission of the amplifier, connected after the doped fibre and capable of sending the transmission signals to the output of the amplifier and the spontaneous emission to a further output, and a loop circuit for the re-circulation of the said  
15 spontaneous emission collected from the said further output and re-injected before the said doped fibre of the amplifier.